



# Teacher Training on the Revised Math Standards

Math K-2



**Welcome**

## Agenda: Day 2

| Time        | Content   |
|-------------|---|
| 8–11:15     | Part 4: Assessment & Instructional Materials <ul style="list-style-type: none"><li>• M7: Connecting Standards and Assessment</li></ul>  |
| 11:15–12:30 | Lunch (on your own)   |
| 12:30–4     | <ul style="list-style-type: none"><li>• M8: Evaluating Instructional Materials</li></ul> Part 5: Putting it All Together <ul style="list-style-type: none"><li>• M9: Instructional Planning</li></ul> |

## Norms

- Keep students at the center
- Be present and engaged
- Be reflective and solutions oriented
- Challenge ideas with respect
- Monitor airtime

## Today's Goals

- Discuss the role assessment plays in the integrated system of learning.
- Discuss the cycle of assessment.
- Discuss the four areas of focus for standards-aligned assessments.
  - Review and create Math assessment items
- Develop a process for evaluating instructional materials.
- Connect standards and assessment through instructional planning.

## Key Ideas



## Key Ideas



### High expectations

We have a continued goal to prepare students to be college and career ready.

### Strong Standards

Standards are the bricks that should be masterfully laid through quality instruction to ensure that all students reach the expectation of the standards.

## Key Ideas



### Instructional Shifts

The instructional shifts are an essential component of the standards and provide guidance for how the standards should be taught and implemented.

### Aligned Materials and Assessments

Educators play a key role in ensuring that our standards, classroom instructional materials and assessments are aligned.



## Part 4: Aligned Materials and Assessment

### Key Idea

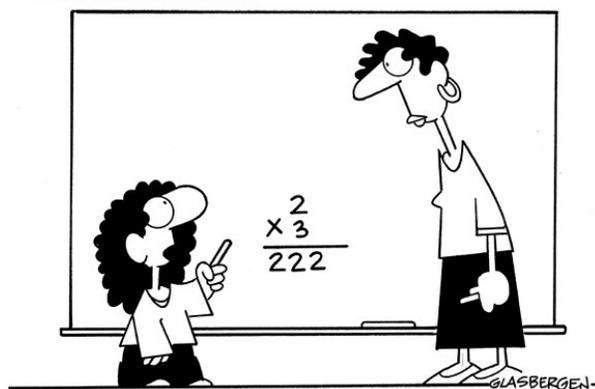




# Assessing Student Understanding: Grades K–2 Mathematics

## Think About it...

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"What do you mean, it's the wrong kind of right?"

## Goals

- Discuss the role assessment plays in the integrated system of learning.
- Discuss the cycle of assessment.
- Discuss the four areas of focus for standards-aligned assessments.
  - Review Math assessment items
  - Create Math assessment items

## Connecting Standards and Assessment

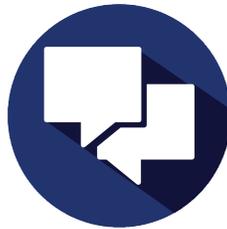


## Defining Assessment

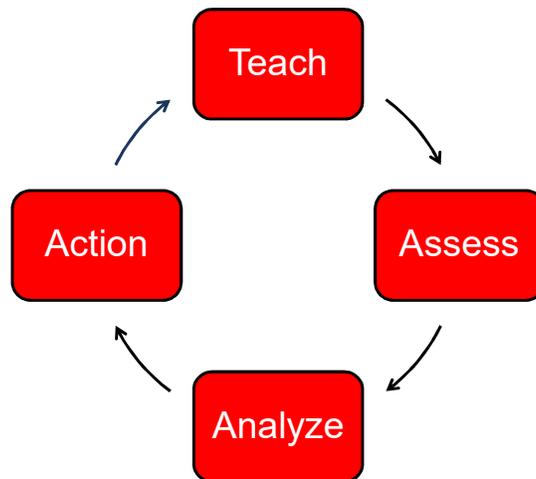
- Assessment is the action or an instance of making a judgment about something.

## Turn & Talk

- Considering this definition of assessment, what are educators “making a judgement about” when assessing students?



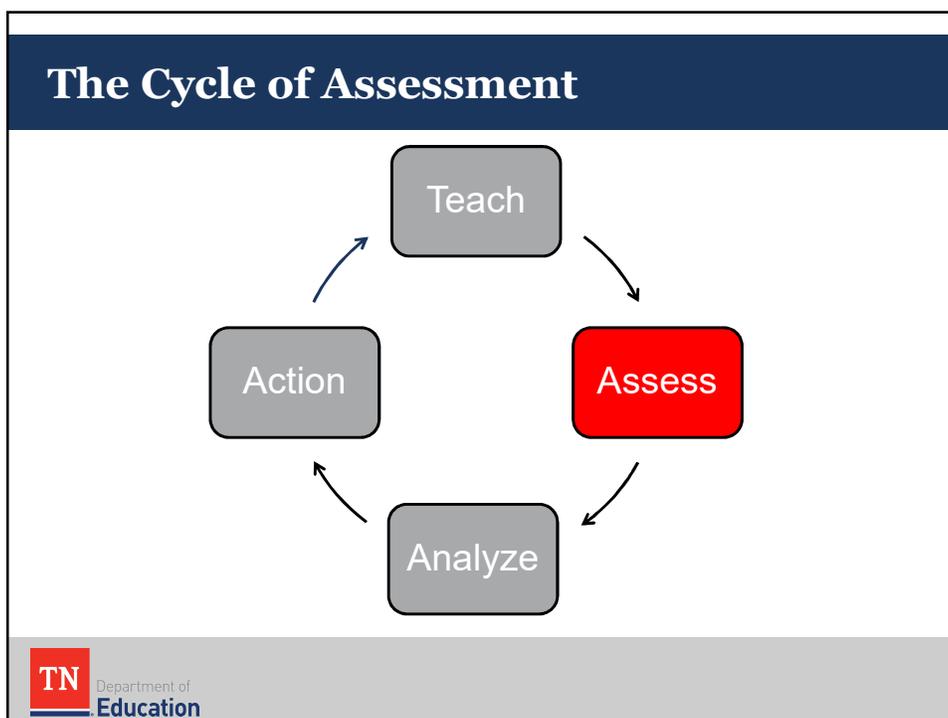
## The Cycle of Assessment



## Think About It...

“The good news is that research has shown for years that **consistently applying** principles of assessment for learning has yielded remarkable, if not unprecedented, gains in student achievement, especially for low achievers.”

—Black & Wiliam, 1998



## Standards Aligned Assessments

### Areas of Focus

1. Intent of the Assessment
  - Summative
  - Formative
2. Content and Structure of Assessments
3. Analysis of Assessments



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## Intent of Assessments

“Benchmark assessments, either purchased by the district or from commercial vendors or developed locally, are generally meant to measure progress toward state or district content standards and to predict performance on large-scale summative tests. A common misconception is that this level of assessment is automatically formative.”

-Stephen and Jan Chappuis 2012



## Formative vs Summative

How are the results used?

| Formative | Summative |
|-----------|-----------|
|           |           |



## Intent of Assessments

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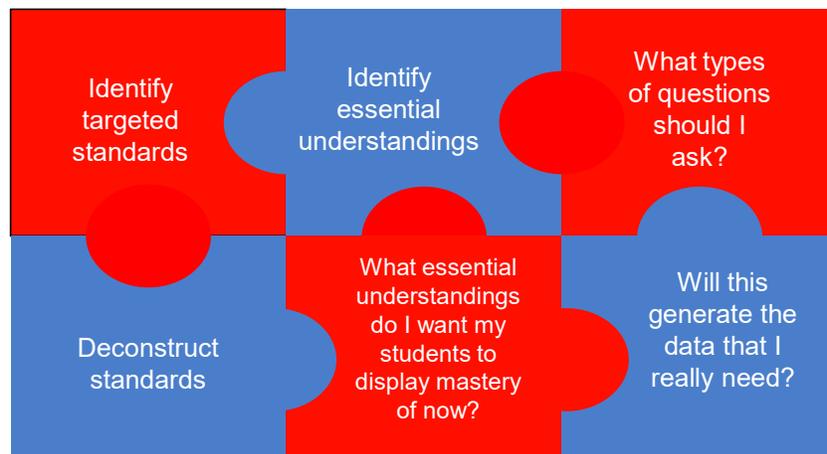


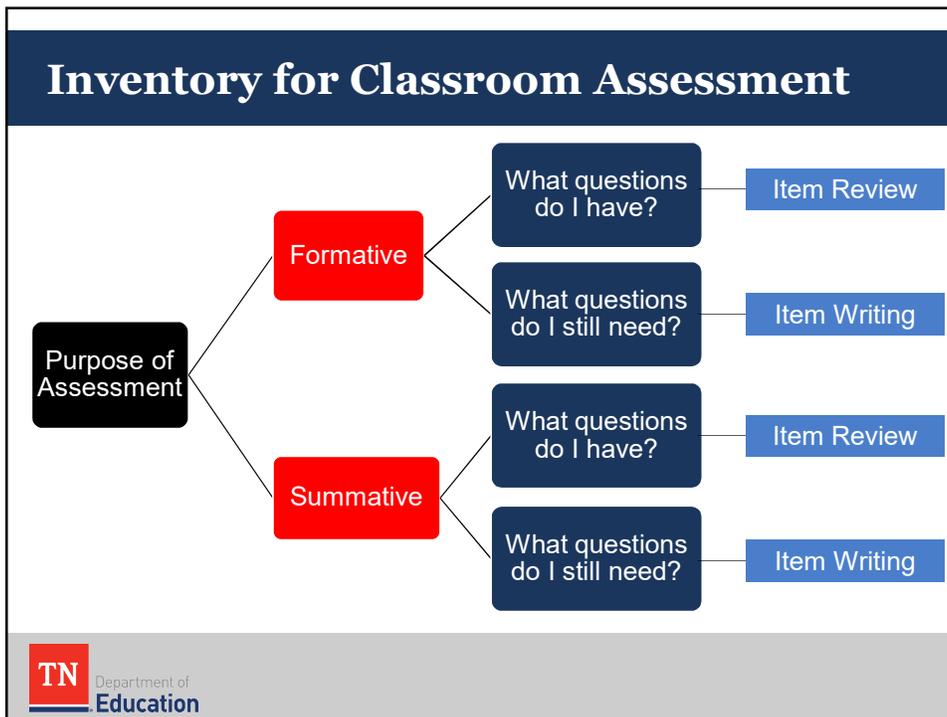
## Quality Assessments

Universal Design Principles:

- No barriers
- Accessible for all students
- Upholds the expectations of our state standards

## Developing a Classroom Assessment





## Assessing an Item Activity: Math

1<sup>st</sup> Grade Math:

Standard:

**1.OA.A.1** Add and subtract within 20 to solve contextual problems, with unknowns in all positions, involving situations of *add to*, *take from*, *put together/take apart*, and *compare*. Use objects, drawings, and equations with a symbol for the unknown number to represent the problem. (See Table 1 - Addition and Subtraction Situations).



## Which Item Provides a Better Lens into Student Understanding?

**Item 1:** John has some baseball cards.

- His friend gave him 5 more baseball cards.
- John now has 12 baseball cards.

How many baseball cards did John have before?

- A. 5
- B. 6
- C. 7
- D. 8

**Item 2:** John has some baseball cards.

- His friend gave him 5 more baseball cards.
- John now has 12 baseball cards.

How many baseball cards did John have before?

- A. 7
- B. 8
- C. 13
- D. 17



## Which Item Provides a Better Lens into Student Understanding?

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- D. 8



## Which Item Provides a Better Lens into Student Understanding?

**Item 2:** John has some baseball cards.

- His friend gave him 5 more baseball cards.
- John now has 12 baseball cards.

How many baseball cards did John have before?

- A. 7
- B. 8
- C. 13
- D. 17



## Assessment Terminology

### Item Type

- Selected response
- Open response
- Verbal
- Extended writing

### Item Components

- Stimulus** – the passage(s)
- Stem** – the question that is asked
- Key** – the correct answer
- Distractor** – an incorrect answer
- Rationale** – the reason an answer is correct or incorrect

## Examining Items: Formative vs Summative

|                                       |   |  |
|---------------------------------------|---|--|
| What is the question actually asking? | Is the question aligned to the depth of the standard? | Are the answers precise?                               |
| Is the wording grade appropriate?     | Is the question aligned to the standard?              | Do the distractors give insight into student thinking? |
| Is the entire standard assessed?      | Is the question precise?                              | Is there a better way to assess the standard?          |

## Item Assessment Activity

You will look at five assessment items. For each provided item, think about the things we just discussed. Decide if you would keep the item, revise the item in some way, or choose to exclude it when building a classroom assessment.

Look first at the items independently. Then you may work with a partner to complete the activity.



## K.OA.A.2

Add and subtract within 10 to solve contextual problems using objects or drawings to represent the problem.

4 books were on a table. Sam put 2 more books on the table. How many books are on the table?

Choose the correct answer.

- A.  + 
- B.  + 
- C.  +  + 
- D.  + 



## 1.MD.B.4

Count the value of a set of like coins less than one dollar using the ¢ symbol only.

How much money is shown?



\_\_\_\_\_ ¢

## 2.NBT.A.2

Count within 1000. Skip-count within 1000 by 5s, 10s, and 100s, starting from any number in its skip counting sequence.

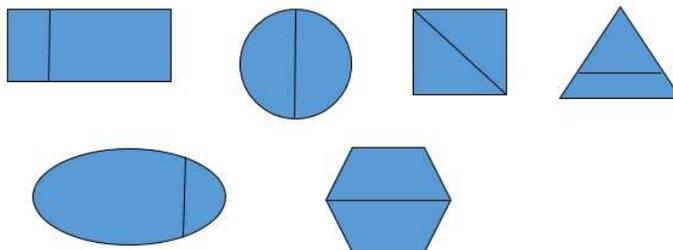
Which set of numbers shows counting by fives?

- A. 5, 10, 15, 20, 25
- B. 1, 5, 10, 16, 23
- C. 25, 26, 27, 28, 29
- D. 12, 17, 22, 27, 32

## 2.G.A.3

Partition circles and rectangles into two, three, and four equal shares, describe the shares using the words *halves*, *thirds*, *fourths*, *half of*, *a third of*, and *a fourth of*, and describe the whole as *two halves*, *three thirds*, *four fourths*. Recognize that equal shares of identical wholes need not have the same shape.

Which shapes show two halves? Circle the **three** correct answers.



## 1.NBT.B.2

Know that the digits of a two-digit number represent groups of tens and ones (e.g., 39 can be represented as 39 ones, 2 tens and 19 ones, or 3 tens and 9 ones).

Choose the **three** correct ways to show 27.

- A. 2 tens and 17 ones
- B. 1 ten and 17 ones
- C. 2 tens and 7 ones
- D. 0 tens and 27 ones
- E. 7 tens and 2 ones

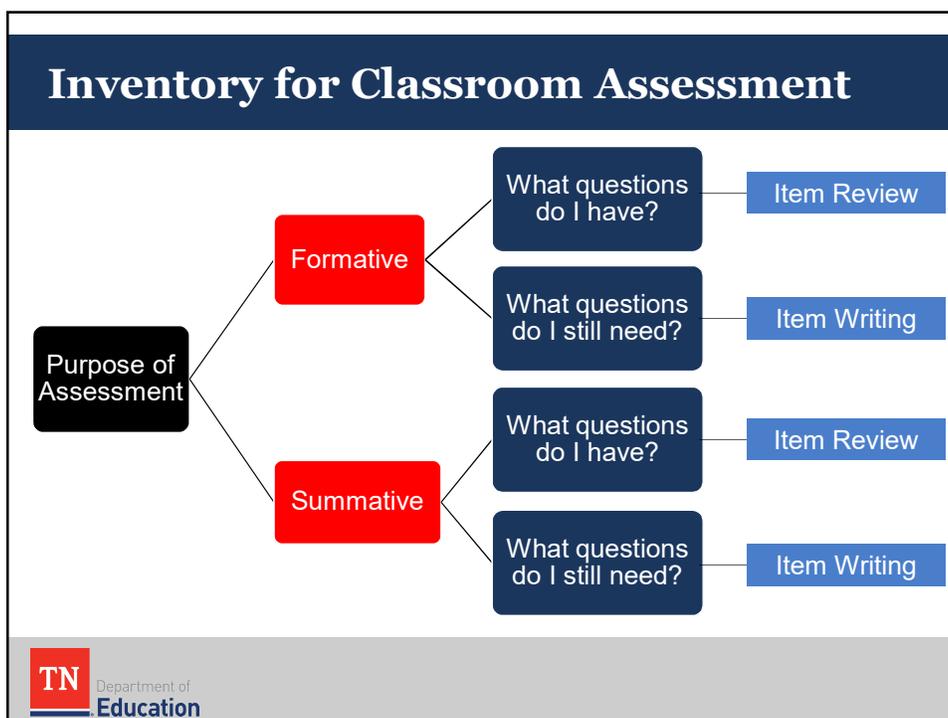
## Turn & Talk

- Share one or two “ah-ha” moments from this activity with your table partners.



## 10-Minute Break





## Item Writing-Formative Assessments

|  |   |  |
|--|---|--|
| What is the question actually asking?                  | Across all items, are there questions aligned to the depth of the standard? | Are the answers precise?                               |
| Is the wording grade appropriate?                      | Is the question aligned to the standard?                                    | Do the distractors give insight into student thinking? |
| Is the entire standard assessed in the suite of items? | Is the question precise?  | Is there a better way to assess the standard?          |



## Standards-based

**Before you actually start writing items:**

- Think about the *purpose* of the assessment as a whole. Is it formative or summative?
- Read the standards carefully with the assessment purpose in mind. Ask yourself: “What skills/knowledge are the standards asking the student to display?”
- Revisit the “I can” statements or “essential questions” you wrote for the standard(s). They may provide guidance as you write items.
- Brainstorm.



## Revisiting Standard 2.OA.A.1

**2.OA.A.1** Add and subtract within 100 to solve one- and two-step contextual problems, with unknowns in all positions, involving situations of add to, take from, put together/take apart, and compare. Use objects, drawings, and equations with a symbol for the unknown number to represent the problem.

## Formative Assessment

John has some baseball cards.

His friend gave him 5 more baseball cards.

John now has 12 baseball cards.

How many baseball cards did John have before?

- A. 7
- B. 8
- C. 13
- D. 17

## Formative Assessment

Represent put together problems within 100 with equations.

48 counters are in a jar. 23 are black and the rest are white,  
How many counters are white?

Choose the **three** equations that represent the problem.

- A.  $23 + \underline{\quad} = 48$
- B.  $23 + 48 = \underline{\quad}$
- C.  $48 - 23 = \underline{\quad}$
- D.  $23 - \underline{\quad} = 48$
- E.  $\underline{\quad} + 23 = 48$

## Formative Assessment

Solve contextual subtraction problems within 100.

Sara has 42 stickers. She gave some to her friend. Sara  
now has 29 stickers. How many stickers did Sara give her  
friend?

\_\_\_\_\_ stickers

## Revisiting Standard 2.OA.A.1

**Did we cover all aspects of the standard with these items? Turn and talk to a neighbor.**

**2.OA.A.1** Add and subtract within 100 to solve one- and two-step contextual problems, with unknowns in all positions, involving situations of add to, take from, put together/take apart, and compare. Use objects, drawings, and equations with a symbol for the unknown number to represent the problem.



## Recap: Big Ideas

- Formative assessments *may* need items that scaffold in order for the teacher to diagnose what a student does/does not understand.
- Effectively writing “I can” or “Essential Questions” helps target assessment items specifically to standards.
- It is very difficult to formatively assess student understanding through a single item.
- It’s important to ask yourself the 9 essential questions during item review or item writing.



## Quality Assessments

Universal Design Principles:

- No barriers
- Accessible for all students
- Upholds the expectations of our state standards

## Item Writing-Formative Assessments

What is the question actually asking?

Across all items, are there questions aligned to the depth of the standard?

Are the answers precise?

Is the wording grade appropriate?

Is the question aligned to the standard?

Do the distractors give insight into student thinking?

Is the entire standard assessed in the suite of items?

Is the question precise?

Is there a better way to assess the standard?

## Item Writing-Your Turn

- You will be provided a set of standards and two options for item writing.
- Once you have finished writing items, you will post them for our gallery walk.
  - Please post the coding for the standard(s) to which your items are written.
  - You do not have to post the rationales.
- You may work with a partner.



## Selected Response

### Multiple Choice

Items typically have 4 answer options with 1 correct answer.

It may be helpful to use the verb in standard.

Most of the time the stem will be stated in a positive manner avoiding negatives.

The item really should be written as a question, not a completion statement.

### Multiple Select

Students are typically asked to provide two or three correct answers to the question in the stem.

Such items tend to enable students to demonstrate a full understanding of a concept, or solve problems in multiple ways.

There are typically 2–3 correct answers and 5–6 answer options, depending on the grade level/standard being assessed.



## Your Turn: FORMATIVE Item Writing

### Option 1

1. Choose 3 standards.
2. Write an item to assess each standard that you would use on a formative assessment.
3. Try to write at least one multiple choice or multiple select item. Focus on writing distractors that provide instructional information.

### Option 2

1. Choose 1 standard.
2. Write 3 formative assessment items to the single standard that you select. Make sure that each item requires students to demonstrate a different level of understanding of the standard.
3. Try to write at least one multiple choice or multiple select item. Focus on writing distractors that provide instructional information.

## Gallery Walk

As you look at/review your colleagues items, look for similarities and differences in the items created.



## Turn & Talk

Reflect on your experience writing assessment items and discuss:

- What was challenging about this experience?
- What did you learn from this experience?
- What supports do you need to better understand the relationship between standards and assessments in this way?



**Analyzing Assessments**

## Standards Aligned Assessments

### Areas of Focus

1. Intent of the Assessment
  - Summative
  - Formative
2. Content and Structure of Assessments
3. Analysis of Assessments

## Analysis of Assessment

- Is the data from assessments being analyzed?
- How is it analyzed?
- On which questions did students perform well? Why?
- On which questions did students perform poorly? Why?
  - Were there issues with poorly written questions, questions not really aligned to standards, or multiple correct answers?

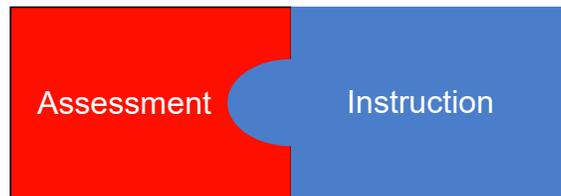
## Did You Know...

- In general on the grade 2 stand-alone field test students performed better on writing to literary text as opposed to informational text. Why?
- In general students struggled answering assessment items around quadratics in Algebra I. Why?
- Students demonstrated better understanding in Reading: Informational Text than Reading: Literature in English I. Why?



**Taking Action**

## Action

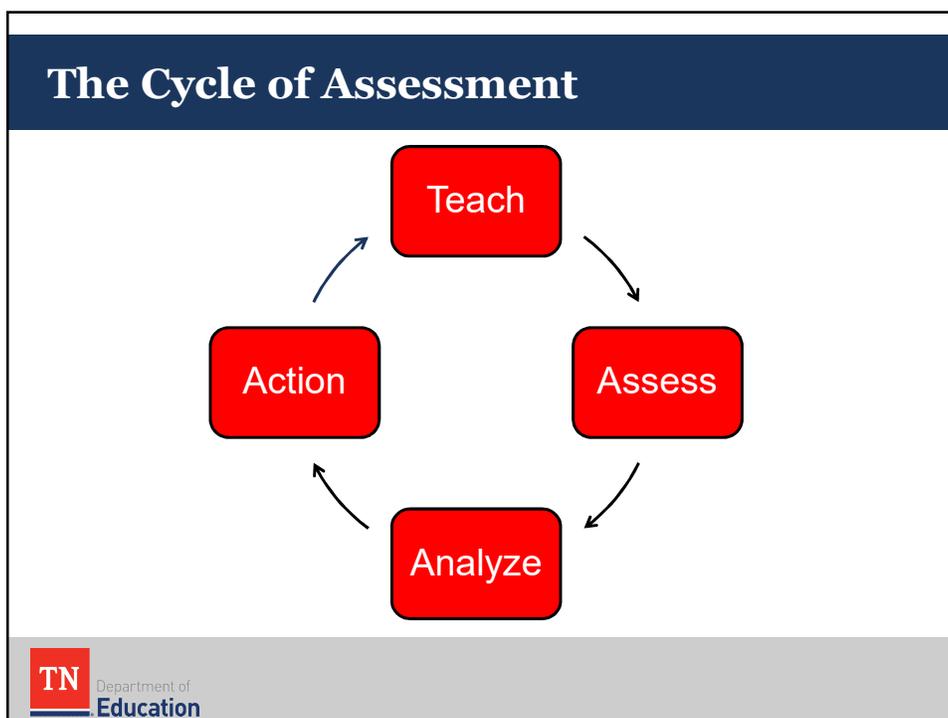
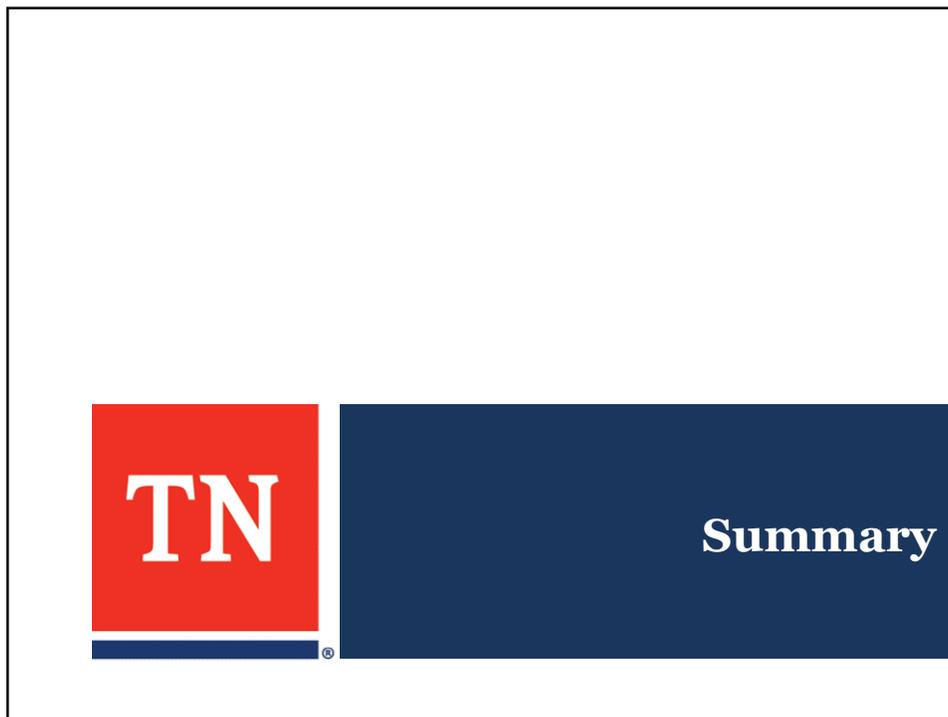


- How is instruction changing/adapting as a result of student data?
- Are results shared with all stakeholders (including students)?
- Are assessments adapted to address weaknesses found?

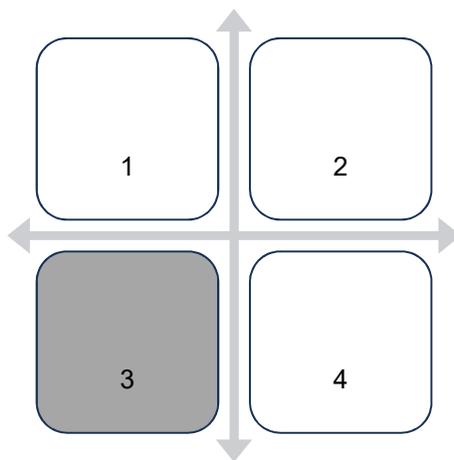
## Think About It...

“The assessments will produce no formative benefit if teachers administer them, report the results, and then continue with instruction as previously planned.”

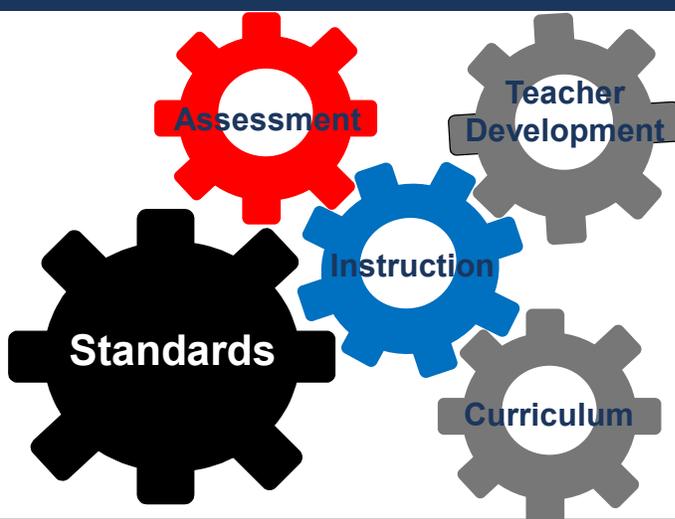
—Stephen and Jan Chapuis, 2012



## Appointment with Peers



## Connecting Standards and Assessment



**Lunch Break: 1 hour 15 minutes**



**Please Sign In!**





**Module 8:  
Evaluating  
Instructional Materials**

## Key Question

How do we know that our instructional materials address the depth of the content and the instructional shifts of focus, coherence, and rigor of the TN State Standards?



## Goals

- Examine the TEAM rubric to define what is meant by standards based materials.
- Know which key criteria to use for reviewing materials, lessons, and/or units for alignment and quality.
- Understand how the review process of instructional materials will:
  - Deepen understanding of the standards,
  - Make use of screening instruments to analyze materials to determine alignment or gaps, and
  - Result in wise decisions about how best to use the materials already on-site to teach the new standards to mastery OR effectively fill any gaps uncovered in the review process.



## Standards-based Materials and Practice

## Rationale

“...teachers have a responsibility to make day-to-day instructional choices that ensure that students work with problems that engage their interest and their intellect.”

—*Smarter Than We Think*



## Reflect on our Practice

When your students' work is on public display, in the hallway or shared with families, can anyone see the math?



## Reflect on our Practice

In other words:

- Are the materials and the instructional practices you are using focusing on the mathematics?
- If anyone looked at your students' work, would they be able to see the math or would they be left asking "where's the math?"

## TEAM: Activities & Materials

- Support the lesson objective
- Are challenging
- Sustain students' attention
- Elicit a variety of thinking
- Provide time for reflection
- Provide opportunities for student-to-student interaction
- Provide students with choices
- Incorporate technology
- Induce curiosity & suspense
- In addition sometimes activities are...
  - Game-like
  - Involve simulations
  - Require creating products or
  - Demand self-direction and self-monitoring
- The preponderance of activities demand complex thinking and analysis
- Texts & task are appropriately complex

## TEAM: Problem Solving

- Abstraction
- Categorization
- Predicting Outcomes
- Improving Solutions
- Generating Ideas
- Creating & Designing
- Observing & Experimenting
- Drawing Conclusions/Justifying Solutions
- Identify Relevant/Irrelevant Information

## My Shape Monster Activities



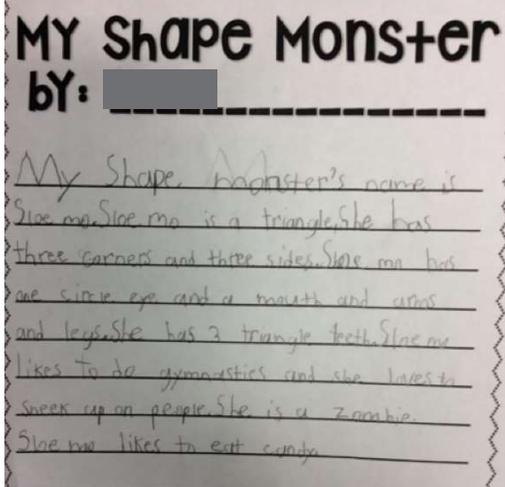
## Effective Mathematics Teaching Practices

1. Establish mathematics goals to focus learning.
2. Implement tasks that promote reasoning and problem solving.
3. Use and connect mathematical representations.
4. Facilitate meaningful mathematical discourse.
5. Pose purposeful questions.
6. Build procedural fluency from conceptual understanding.
7. Support productive struggle in learning mathematics.
8. Elicit and use evidence of student thinking.

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5. Pose **purposeful** questions.
6. Build **procedural fluency** from **conceptual understanding**.
7. Support **productive struggle** in learning mathematics.
8. Elicit and use evidence of **student thinking**.

## My Shape Monster Activities



## My Shape Monster Activities

- What content standard do you think these activities address?
- Where is the evidence of student understanding of the mathematical content?



## My Shape Monster Activities

If a teacher was trying to addressing the depth of the **content standard 1.G.A.1** does My Shape Monster accomplish this goal?

1.G.A.1 Distinguish between attributes that define a shape (e.g., number of sides and vertices) versus attributes that do not define the shape (e.g., color, orientation, overall size); build and draw two-dimensional shapes to possess defining attributes.



Criteria for Alignment  
and Quality

## Research

“A curriculum is more than a collection of activities.”

-from the Curriculum Principle in Principles and Standards for School Mathematics

## Research

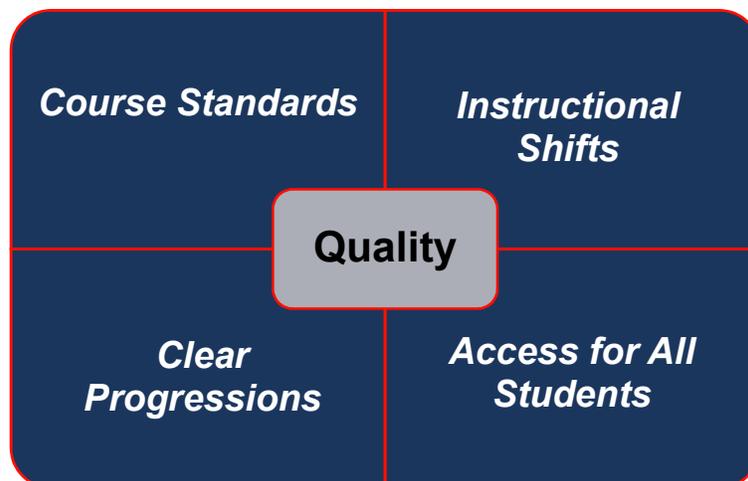
**A well-articulated curriculum will:**

- Make clear the most important mathematics of the grade level.
- Specify when concepts and skills are introduced and when they should be mastered.
- Detail how student conceptual understanding of big ideas develops across units and across multiple grade levels.

## Identifying Effective Instructional Materials

- When choosing instructional materials, what should a teacher consider?
- Stop and jot some ideas.

## Key Criteria for Instructional Materials



## Key Criteria for Instructional Materials

- High-quality instructional materials are:
  - Aligned to the standards,
  - Connected to the content,
  - Show clear learning progressions, and
  - Are devoted to the major work of the grade/course standards (math).

## Let's Recap

- Our classroom practice and the resulting student work should always connect with all components of the Tennessee State Standards.
- Our use of high leverage teaching practices will promote the types of activities that will increase student achievement.
- Our use of specific key criteria for reviewing materials, lessons, and/or units for alignment and quality will ensure student access to the Tennessee State Mathematics Standards.



## Materials Review Instrument

- The screening instruments call for **100 percent alignment to the standards** for English language arts, math, science, and social studies.
- Once reviewers have a deep understanding of the standards, they should study the screening instrument.

## Materials Review Instrument

- **Section I: Non-negotiable Alignment Criteria**
  - **Part A: Standards**
  - **Part B: Shifts**
    - **Focus**
    - **Rigor**
    - **Coherence**

## Materials Review Instrument

- **Section I: Part A**
- The instructional materials represent **100 percent alignment** with the Tennessee Math Standards and explicitly focus teaching and learning on the course standards at the rigor necessary for students to reach mastery.

## Materials Review Instrument

- **Section I: Part B**
- Instructional Shifts
  - Focus
  - Rigor
  - Coherence

## Materials Review Instrument

### **Part B: Non-negotiable**

**Focus: Instruction centers on the course standards, standards for mathematical practice, and literacy skills for mathematical proficiency.**

## Materials Review Instrument

- Materials focus on the course standards. Topics from future courses and/or earlier grades/courses are clearly identified as such in the materials, and do not detract from focus.
- Materials connect the standards for mathematical practice and literacy skills for mathematical proficiency to the content standards in meaningful and intentional ways. The development of the math practices and literacy skills is well-grounded in content and not isolated.



## Materials Review Instrument

- Materials include teacher-directed materials that explain the role of the standards for mathematical practice in the classroom and in students' mathematical development. Problems and activities present opportunities for students to make use of and exhibit the math practices as they work on content.
- Materials are mathematically accurate and course appropriate.



## Materials Review Instrument

### Part B: Non-negotiable

**Provides learning experiences that supports coherence across and within courses and grade levels.**



## Materials Review Instrument

- Connections are made within a course between clusters and domains, where these connections are appropriate and natural, as set forth by the standards.
- Content progressions between this course and other mathematics courses reflect those seen in the standards. These progression connections are clearly indicated in the materials and enhance the required learning in the course. They are clearly aimed at helping students meet the standards as written.



## Materials Review Instrument

### Part B: Non-negotiable

**The three aspects of rigor are given full attention: conceptual understanding, procedural fluency, and application.**

## Materials Review Instrument

- High-quality problems and questions designed to invite exploration and support conceptual understanding are included for content standards and clusters that explicitly call for it. A variety of conceptual problems enable students to connect mathematical ideas and representations and transfer understandings to new situations.
- Materials support the development of fluency and include opportunities to practice algebraic manipulation and computation, appropriately apply tools, and use technology. Sometimes problems are purely procedural; none are based on non-mathematical tricks or mnemonics.

## Materials Review Instrument

- Students are given opportunity to apply mathematical knowledge and skills for standards that set a clear expectation for modeling. A variety of course-appropriate problems provide students the opportunity to apply mathematical models in a variety of contextual situations using knowledge and skills articulated in the standards prior to or during the current course.

## Materials Review Instrument

- **Section II: Additional Alignment Criteria and Indicators of Quality**
  - Part A: Key areas of focus
  - Part B: Student engagement & instructional focus
  - Part C: Monitoring student progress

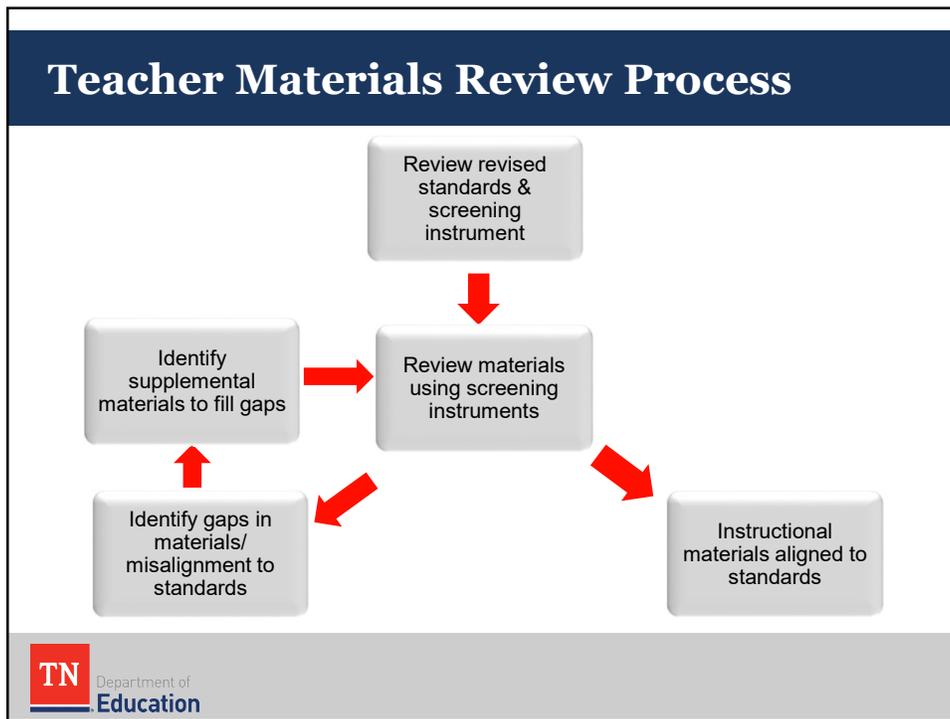
## Best Practices

- While our standards have undergone mostly minor revisions, it's important to review instructional materials you use to determine where you have strong alignment to standards and where you may have gaps to fill.
- **School leaders and teachers should engage in reviewing instructional materials on an ongoing basis to develop pedagogy and capacity.**

## Teacher Materials Review Process

Teachers need to review materials when:

- There is a new adoption. (This occurs annually for different subjects at the local level.)
- Current materials have gaps that may require supplemental materials.
- They are looking for supplemental instructional materials.



## Supplemental Materials

Let's discuss:

- What resources do you have on hand?
- Where do you find supplemental materials?
- How can you use this process to evaluate supplemental materials?

TN Department of Education

## Reviewing Materials: A Recap

As you look for materials...

1. Is it aligned to the standards?
2. Does it reflect high leverage best practices?
3. Is it accessible for ALL students?
4. Does it lead to students being able to demonstrate mastery of the standard?



## Think Back to Shape Monster

- Was it aligned to the course standards?
- Did it focus on major work of the grade?
- Could it be a part of coherent set of activities?
- What SMPs did it align to?
- Can the literacy skills be applied?
- Can *all* students access the activity?
- How do students demonstrate mastery?



## Potential Gaps in Materials

### Grades K–2:

- Increased fluency standards
  - Expanded range of numbers in K–2
- Money standards included in K–1

### Grades 3–5:

- Measurement and data conversion standard revised and shifted
  - Conversion limited to same system and from larger to smaller units exclusively in grade 5



## Reflect

“High-quality coherent mathematics programs help students make sense of mathematics by situating the mathematics in problem solving contexts, so that students learn the mathematics in order to answer meaningful questions in real-world or mathematical contexts. Explicit attention is paid to promoting students’ conceptual understanding of mathematical content as well a mathematical thinking and reasoning practices so that the mathematics itself makes sense to students. By linking mathematical topics within and among mathematical domains, mathematics appears as a unified discipline rather than as a collection of topics.”

—from *Principles to Actions*



## Module 8 Review

The review process of instructional materials will:

- Deepen understanding of the standards,
- Make use of screening instruments to analyze materials to determine alignment or gaps, and
- Result in wise decisions about how best to use the materials already on-site to teach the new standards to mastery OR effectively fill any gaps uncovered in the review process.



## Part Four

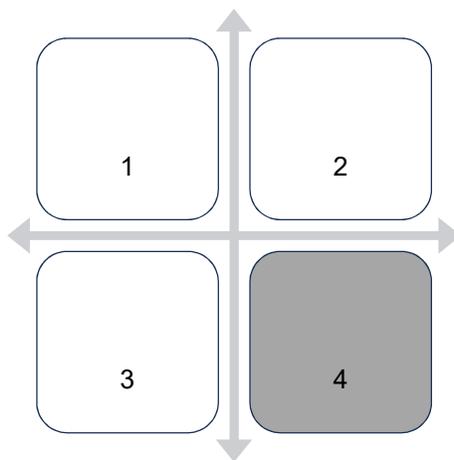


### Aligned Materials and Assessments

Educators play a key role in ensuring that our standards and classroom instructional materials, and assessments are aligned.



## Appointment with Peers



## 10-Minute Break





## Part 5: Putting It All Together

### Key Ideas





**Module 9:  
Instructional  
Planning**

## Goals

- Understand intentional instruction as a bridge between good standards and assessment.
- Develop lesson planning techniques to strengthen the understanding of the relationship between standards and practice.
- Create lessons based on the revised standards to be used for instruction.

## Rationale

“...teachers have a responsibility to make day-to-day instructional choices that ensure that students work with problems that engage their interest and their intellect.”

—Cathy L. Seeley, 2014



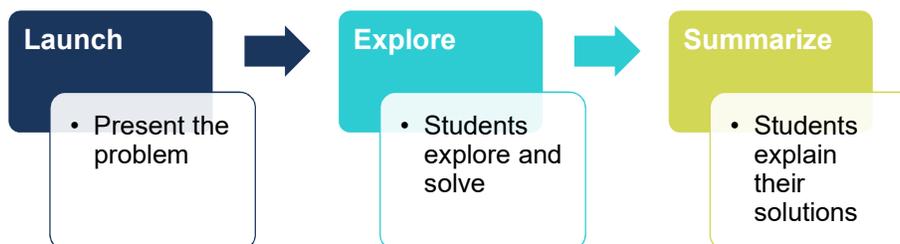
## Designing Effective Learning Experiences



## What is Intentional Instruction?

- What does “intentional” mean?
- Keep standards in mind—what standards are driving your instruction?
- Keep assessment in mind—what are your end goals?  
What do students need to...
  - **K**now,
  - **U**nderstand, and
  - **D**o to meet these standards?

## Intentional Instruction Structure



## Three-phase Lesson Plan

- Launch – present the contextual problem/task
- Explore – allow plenty of time for students to explore and solve the problem
- Summarize
  - The **most important** part of the lesson comes when students explain their solution problems.
  - Encourage students to question their classmates.
  - In other words, use accountable talk or number talks.

## Launch Phase

- Ask students to talk about what is happening in the problem (literacy module).
- Review vocabulary (literacy module).
- Encourage describing the relationships between the quantities.
- What will the answer tell us? (making sense)
- Explain that they may chose which tools to use.

## Explore Phase

- Let go!
- Start with a private (individual) work time for 1–3 minutes.
- Have tools and/or manipulatives available.
- Allow children to use any of the methods below to solve
  - Counters to act out the problem.
  - Number lines, hundreds charts, and/or base 10 blocks.
  - Drawing pictures that represent each of the quantities in the problem

## Explore Phase

- After 1–3 minutes, move to small group problem solving where students work together.
- Observe student work and ask questions.
- Monitor to select solution strategies to share based on different solution paths, different representations, common errors, and misconceptions.

## Summarize Phase

- The teacher carefully selects strategies to be shared that build and focus on big ideas.
- Students share, compare, discuss, and reflect on their thinking. Students reflect to make connections among representations.



**Planning for  
Instruction**

## Putting it All Together

- Review standard, determine KUD
- Evaluate instructional materials
- Utilize Launch, Explore, and Summarize model
- Assess learning

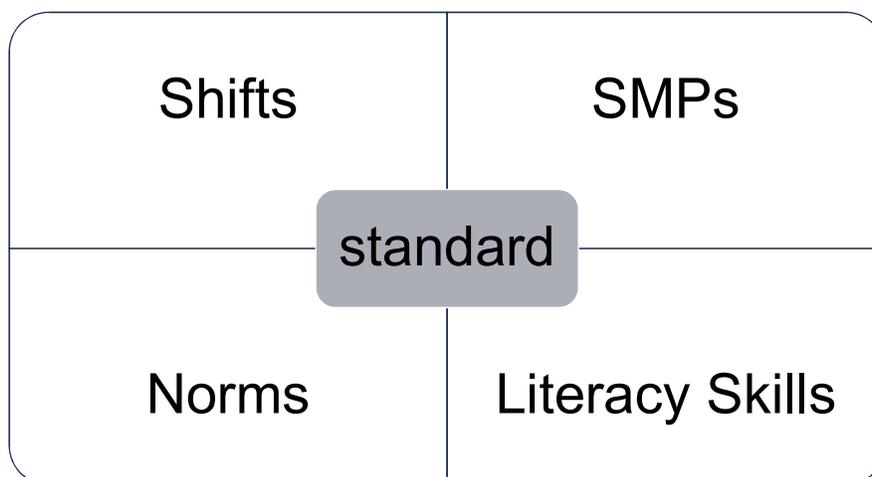
## Step 1: Review the Standards

- Review the revision of the standards
  - Is the standard the same or has it been revised?
  - Has the learning changed?
  - How do the SMPs, literacy skills, and instructional shifts apply?
  - What do students need to know, understand, and do?

## Grade Level Examples

|          |  |
|----------|--|
| K.OA.A.1 | Represent addition and subtraction with objects, fingers, mental images, drawings, sounds, acting out situations, verbal explanations, expressions, or equations.  |
| 1.OA.A.1 | Add and subtract within 20 to solve contextual problems, with unknowns in all positions, involving situations of add to, take from, put together/take apart, and compare. Use objects, drawings, and equations with a symbol for the unknown number to represent the problem.                    |
| 2.OA.A.1 | Add and subtract within 100 to solve one- and two-step contextual problems, with unknowns in all positions, involving situations of add to, take from, put together/take apart, and compare. Use objects, drawings, and equations with a symbol for the unknown number to represent the problem. |

## Intentional Planning

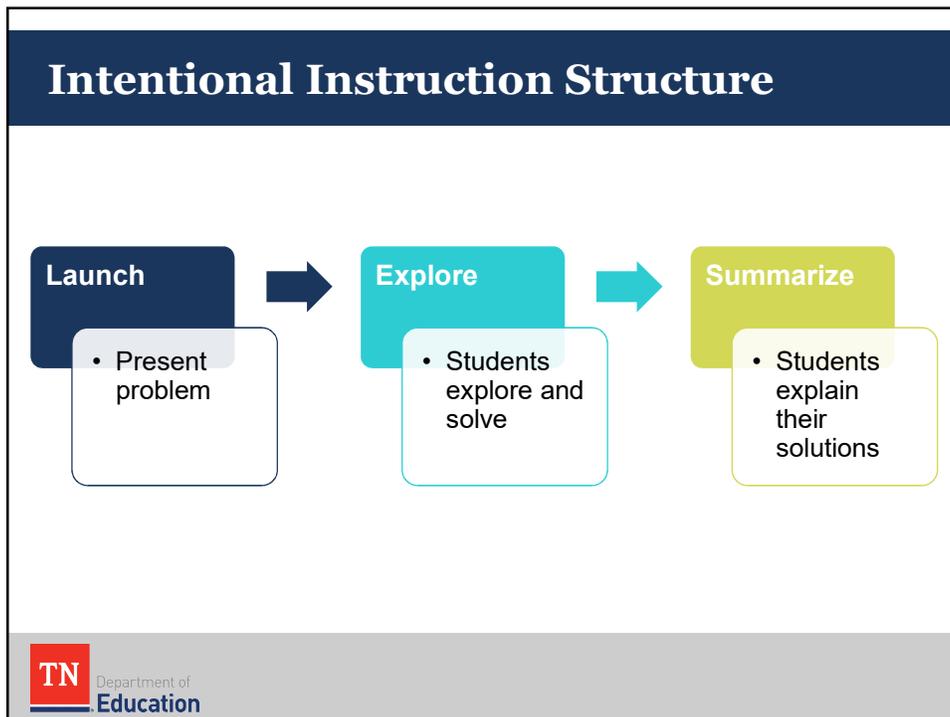


## Step 2: Evaluate Instructional Materials

- Use the Materials Review Instrument.
- Evaluate textbook and supplemental materials for alignment.

## Step 3: Create Learning Experiences

- Plan with the *end in mind*.
- What will the teacher be doing?
- What will the students be doing?
- What will the classroom look and sound like?
- What literacy standards and mathematical practices will be incorporated?



## Step 4: Assessment

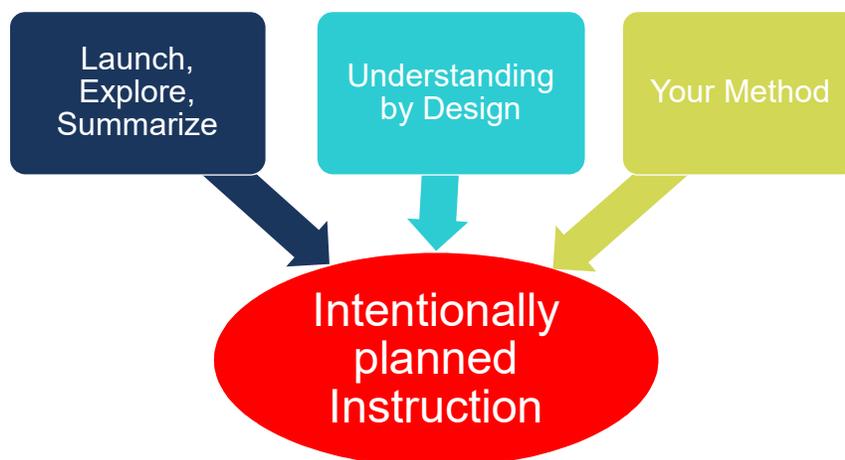
- How will you know they have learned the concepts?
- Can you challenge their thinking during an assessment?
- How do you provide intervention for a specific student after instruction?

TN Department of Education

## Now It's Your Turn!

- Split into groups of 5.
- Plan learning experiences for the NBT domain for one cluster in your grade level.
- Complete the 4 step planning process
  - Dig into the standards
  - Determine KUD
  - Create learning experience
  - Assessment

## Many Ways to “Do” Intentional Planning



## Let's Recap

- Younger children have little or no means of computing. Thus, counters or other models are used to reenact the problem.
- No matter the grade level, have children think through the problem before they get started.

## Let's Recap

- Solving contextual problems of all sorts on a regular basis should be a significant part of your number and computation curriculum.
- But your goals for children should go beyond being able to solve story problems.
- At the pre-K–2 level, there are many interrelated objectives that you should have in mind when you pose story problems.

## Interrelated Objectives

- Understanding of the various meanings of the four operations
- Development of number skills and concepts
- Computational fluency

## The Value of Teaching with Contextual Problems

- Develops the belief in students that they are capable of doing mathematics
- Engages students so that there are fewer discipline problems
- Aids in differentiating instruction

## Part Five



### **Strong Standards**

Standards are the bricks that should be masterfully laid through quality instruction to ensure that all students reach the expectation of the standards.

### **High Expectations**

We have a continued goal to prepare students to be college and career ready.

## Part Five



### **Instructional Shifts**

The instructional shifts are an essential component of the standards and provide guidance for how the standards should be taught and implemented.

### **Aligned Materials and Assessments**

Educators play a key role in ensuring that our standards and classroom instructional materials, and assessments are aligned.



*Districts and schools in Tennessee will exemplify excellence and equity such that all students are equipped with the knowledge and skills to successfully embark on their chosen path in life.*

**Excellence | Optimism | Judgment | Courage | Teamwork**